

REMARKS

This Amendment is responsive to the Office Action of July 21, 2006. Reconsideration and allowance of the pending claims is requested.

Claim Objections

Claims 11, 15, 31, 48, and 49 are objected to for various informalities. Claims 11, 15, 31, and 49 have been appropriately amended. Reconsideration and withdrawal of the objections are respectfully requested.

Rejections Under 35 U.S.C. § 112

Claims 1, 7, 9, 11-13, 15, and 48 are rejected under 35 U.S.C. § 112, second paragraph as being indefinite and incomplete. Claims 1 and 15 have been amended to positively recite a surgical tool. Reconsideration and withdrawal of the rejections are respectfully requested.

Interview Summary

The applicants express their appreciation to Examiner Smith for the kind courtesy of a Telephone Interview on September 12, 2006. The references and most of the independent claims were discussed. First, agreement was reached on amendments to claims 1 and 44 for causing these claims to distinguish over the currently applied references. Second, the Examiner indicated that she was persuaded by the arguments regarding claim 29 and that the present rejection of it would be withdrawn. Agreement was not reached on the other claims.

Rejections Under 35 U.S.C. § 103

Claims 1, 7, 11-13, 15, 29, and 42-49 are rejected under 35 U.S.C. § 103 as unpatentable over U.S. Patent No. 5,638,819 (**Manwaring**) in view of WO 93/15648 (**Wilk**).

The applicants have amended **claim 1** to specify two different displays – a remote display with the diagnostic image and a target or trajectory, and an indicating means associated with the tool. First, Manwaring includes a trajectory correction display **46**, but it has two shortcomings: (1) it is part of the remote display and (2) it is

in the frame of reference of the diagnostic image. Wilk, having no position indicating means on the endoscope, cures neither of these shortcomings.

Having the display on the indicating means associated with the tool in the frame of reference of the indicating means makes it more intuitively obvious and idiot-proof regarding which way the tool and indicating means should move to correct the positional error. **Claims 7, 9, 11, 12, and 13 depend from claim 1** and are also in condition for allowance for these same reasons.

Claim 15 has been amended analogous to claims 1 and 44. Accordingly, it is submitted that claim 15 and claim 48 dependent therefrom now distinguish over the references of record.

Claim 29 calls for two displays, the remote display of the patient anatomy and the position indicator mounted to the tool. Manwaring and Wilk both have a single display. Perhaps more significantly, claim 29 calls for indicating the magnitude of the distance that the tool must be moved for the tip to reach the desired position and to do this by blink rate or color. This enables the surgeon to focus attention on the tool and provides an intuitive distance magnitude feedback without removing concentration from the tool. Maintaining concentration on the tool can be particularly critical as the tool gets closer to the target. Thus, indicating magnitude by blink rate or color is a significant and critical difference in claim 29.

Claim 42 has been amended to clarify the frames of reference. It now calls for a surgical tool to which a display is attached, which display indicates a direction in a frame of reference of the tool and the display in which the tool should be translated for the distal end to travel a desired trajectory. Manwaring places the trajectory error display **46** on a remote display which is neither on the tool nor in the frame of reference of the tool. The tool and the display of Manwaring do not have the same frame of reference. It is submitted that Wilk provides no motivation to move the trajectory display on to the tool of Wilk. First, the display of Wilk is the image of what can be seen by the camera at the end of the flexible endoscope and might be considered a type of diagnostic display. But the display of Wilk is too small to present a meaningful diagnostic image display in the sense of Manwaring. Second, it is submitted that Wilk provides no motivation to move a diagnostic display in the sense of Manwaring onto the end of the tool. Third, even if Manwaring were to

motivate one to move display elements from Manwaring to the tool, because Manwaring only displays a form of diagnostic image, it is submitted that Manwaring would only provide motivation to move the diagnostic image of Manwaring.

As an aside, rather than moving more displays onto a video endoscope as shown by Wilk, the video displays of modern video endoscopes are typically presented on a large screen TV mounted to the wall, rather than on the endoscope. This provides a much larger easier to use diagnostic image. Thus, time has shown that the motivation in the art is to move the display of Wilk to the remote display of Manwaring. **Claims 43 and 49 depend from claim 42** and are also in condition for allowance for these same reasons.

Claim 44 has been amended as agreed in the interview.

The applicants have amended **claim 45** to include the subject matter of **claim 46**, which requires the display in the handle of the tool to indicate the direction in which the handle should be moved in the frame of reference of the tool and to clarify the relative frames of reference. This again presents a substantial intuitive instructional advantage relative to the remote trajectional error display of Manwaring which is fixed in a frame of reference of the diagnostic display.

Note what would happen if the display device like Wilk's were mounted on the end of probe 12 of Manwaring and the display 40 of Manwaring were displayed on the probe mounted display. If the display 40 is in the orientation shown in Figure 2 of Manwaring, an error requiring the probe to be moved along the vertical axis would cause the trajectory point 54' to move vertically along the vertical cross hair. **But note what happens when the probe is rotated a few degrees, e.g., 30°.** This rotates the cross hairs of display 46. Now when the error requiring vertical movement of the probe occurs, the trajectory point 54' moves along the cross hair that is tipped 30° from vertical! Indicating that vertical movement is needed by moving an indicator along an axis 30° off from vertical is going to confuse the surgeon and cause errors.

Claim 47 has similar issues regarding the display being mounted to the tool to indicate movement direction in the frame of reference of the hand-held tool. As indicated above, this intuitive movement advantage is not suggested by Manwaring or Wilk.

Allowable Subject Matter

Applicants acknowledge with appreciation the allowance of **claims 22 and 26.**

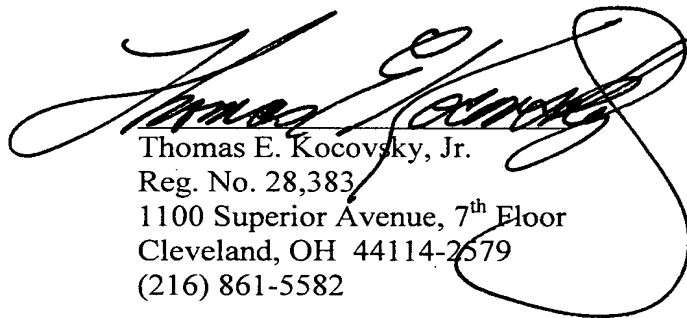
CONCLUSION

For the reasons set forth above, it is submitted that claims 1, 7, 9, 11-13, 15, 22, 26, 29, 31, 42-45, and 47-49 are now in condition for allowance. An early allowance of all claims is requested.

In the event the Examiner considers personal contact advantageous to the disposition of this case, she is requested to telephone Thomas Kocovsky at (216) 861-5582.

Respectfully submitted,

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